SPOT MARKET-BASED INVENTORY PLANNING

ABSTRACT

An inventory planning scheme is described in which an optimal safety stock level of a product is estimated to cover uncertainty in demand over an exposure period with a desired service level based at least in part upon product availability from a spot market. The inventory planning scheme enables an asset manager to cover uncertainty in future end customer demand with a safety stock level that is less than the safety stock level required to cover expected demand with a desired service level when supply is available only from non-spot market sources. In this way, an asset manager may trade some certainty in product price for a shorter and more certain product delivery time to reduce overall product costs by reducing the level of safety stock kept on hand. In particular, per unit prices of products supplied by spot market sources may be higher than the prices of comparable products and components supplied by non-spot market sources. However, depending upon market conditions, overall product costs may be lowered by reducing safety stock levels (and, consequently, lowering total safety stock costs), and supplying from spot market sources the fraction of unmet actual demand needed to reach target service levels.